

Important Advances in Clinical Medicine

Epitomes of Progress—General Surgery

The Scientific Board of the California Medical Association presents the following inventory of items of progress in General Surgery. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist the busy practitioner, student, research worker or scholar to stay abreast of these items of progress in General Surgery which have recently achieved a substantial degree of authoritative acceptance, whether in his own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on General Surgery of the California Medical Association and the summaries were prepared under its direction.

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Evaluation of Lower Extremity Arterial Insufficiency with an Ultrasound Flow Meter

THE DOPPLER ultrasound flow velocity meter provides a simple noninvasive technique for assessing the arterial status of an extremity. The instrument produces an audible sound which varies with the velocity of red cells passing through the narrow beam of ultrasound produced by the probe.

For quantitative evaluation blood pressure measurements are made with the cuff applied at thigh, upper calf and ankle levels. The flow probe is placed over the dorsalis pedis or the posterior tibial artery and used as a sensitive stethoscope to determine systolic pressures. The values are compared with the brachial artery pressure measured with the flow probe. The ratio of ankle to brachial pressure in normal subjects is over 1.0. Lower extremity occlusive disease produces decreased values. In patients with intermittent claudication, the average ratio is 0.6; in those with pain at rest or gangrene, ratios are below 0.3. The drop in pressure between the upper and lower leg is an indication of the level of obstruction.

Measurement of ankle pressures before and immediately after exercise yields additional information, especially in early stages of disease. After five minutes of exercise no change in ankle pressure is found in normal subjects, while in patients with intermittent claudication there is a significant drop. The amount of decrease below resting pressure and the time required for recovery are guides to the severity of obstruction.

This simple technique is useful for initial evaluation of occlusive disease, for documentation of progression and for postoperative follow-up.

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Portal Hypertension in Children

EXTRAHEPATIC PORTAL VEIN THROMBOSIS is the most common cause of portal hypertension in children. In a recent study, bleeding episodes occurred in 80 percent of patients with this disorder within the first six years of life and in more than

90 percent during childhood. In contrast to children with varices caused by cirrhosis, no children died during the first bleeding episode. Exsanguinating hemorrhage is rare even with repeated blood loss. Hypersplenism of moderate degree is common, but rarely warrants splenectomy. Medical therapy with bed rest, sedation and administration of vitamin K and vasopressin tannate (Pitressin Tannate®) will stop the blood loss in most instances. Such episodes become less common during late adolescence. Emergency operations for bleeding are rarely necessary although occasional children with persistent bleeding may require selective superior mesenteric intraarterial pitressin infusion, balloon tamponade, variceal injection with sclerosing solution, variceal ligation or gastric division; however, recurrent bleeding usually follows. Cavomesenteric and central splenorenal venous shunts are the most reliable operations to control bleeding and are successful more than 50 percent of the time. The portal and mesenteric veins are usually involved with an inflammatory process throughout most major tributaries, making shunt thrombosis common. Shunts smaller than 1 cm in diameter usually close. Unsuccessful operations are usually followed by bleeding episodes that are more severe than before operation. Patients in whom shunts are done without venographic evidence of favorable vessels for anastomosis, and patients in whom various other operations are carried out to treat portal hypertension have a higher morbidity and mortality than do patients managed without operation.

In some conditions that produce portal hypertension in childhood due to intrahepatic disease there may be a fair to good prognosis if variceal hemorrhage is controlled by a portal to systemic shunt. These conditions include posthepatic cirrhosis, fibrosis due to chemotherapy for tumor, fibrocystic disease, congenital biliary hypoplasia, glycogen storage disease and a few other diseases. An aggressive surgical approach is recommended in these children even under the age of five years, since they frequently do not tolerate variceal hemorrhage well.

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Management of Breast Nodules

IN 1974 AND 1975 the number of breast operations increased dramatically following the highly publicized operations on the wives of the President and Vice-President of the United States. One report cited a 70 percent increase in biopsies done and a 100 percent increase in malignancies detected.

The management of single breast nodules has not changed notably. Aspiration of breast cysts as an office procedure is an accepted and useful practice. Needle or aspiration biopsy of breast masses, however, requires special expertise and acceptance by individual pathologists and should not be done routinely.

Economic and logistical factors have led several centers to favor breast biopsy done under local anesthesia as an outpatient procedure, particularly when the preoperative diagnosis is of a benign lesion. However, biopsy under general anesthesia is still the most widely approved practice, with immediate radical or modified radical mastectomy done if invasive malignancy is shown to exist. Of special aid to pathologists and surgeons for localization and study of microcalcific lesions found by mammography is having a small x-ray unit (Faxitron) located in the pathology laboratory or in the operating suite.

The use of modified radical mastectomy has gained increasingly wide acceptance in treating patients with invasive malignant lesions not contiguous with underlying muscle, there being no significant difference in long-term survival following this less radical procedure.

Local excision of breast carcinoma is not an acceptable alternative to mastectomy. A recent study has confirmed the high incidence of multicentricity (41.6 percent) in breast carcinoma. As for the problem of cancer in the second breast, "prophylactic" contralateral mastectomy has not gained acceptance.

Routine biopsy of the contralateral breast, when one breast is found to have carcinoma, has been proposed but not universally accepted. Biopsy of the contralateral breast, however, is advocated for lobular carcinoma because of the extremely high incidence of bilateralism. For lobular carcinoma *in situ* detected on biopsy, simple mastectomy of the involved breast is the treatment of choice.

Finally, early results of the National Surgical Adjuvant Breast Project have indicated some